Yulin Wang

Ph.D. Student, Tsinghua University
+86 131-2121-5969 • wang-yl19@mails.tsinghua.edu.cn
www.wyl.cool

Education

Department of Automation, Tsinghua University
Ph.D. Student in Pattern Recognition and Machine Learning *2019 – 2025 (expected)*

- Advisor: Prof. Cheng Wu and Prof. Gao Huang.

School of Automation Science and Electrical Engineering, Beihang University
B.Eng. in Automation *2015 – 2019*

- GPA ***Top 1/231***.
- Awarded **"*Shen Yuan*" Medal** (沈元奖章) by Beihang Univ. (***Top 10* of 18,000+** undergraduate students).

Research Experience

Berkeley Deep Drive, University of California, Berkeley
Research Intern *2018*

- Advisor: Dr. Ching-Yao Chan.

Lab of Intelligent Manufacturing, Beihang University
Research Intern *2017 – 2018*

- Advisor: Prof. Fei Tao.

Publications

Yulin Wang has published a number of works in top-tier conferences & journals in the fields of machine learning and computer vision, including ***TPAMI*** (**3**), ***IJCV*** (**1**), **NeurIPS** (**3**), **ICLR** (**1**), **ICCV** (**6**), **CVPR** (**4**), and **ECCV** (**1**). Two of his papers were selected for "***Oral Presentation***" (acceptance rate: **2-4%**) by ICCV and CVPR, respectively. He has collected **more than *1,500 citations*** according to **Google Scholar**. In addition, he has actively released the code for his published papers, and has received **more than 1.2k stars** on **GitHub**. The detailed paper list is presented in the following.

I. Selected Publications – Peer-reviewed Journal Papers

[1] Mixue Xie, Shuang Li, Kaixiong Gong, **Yulin Wang**, Gao Huang
Adapting Across Domains via Target-Oriented Transferable Semantic Augmentation Under Prototype Constraint
International Journal of Computer Vision (***IJCV*, *Q1*, *IF=19.5***), 2023

[2] Gao Huang*, **Yulin Wang***, Kangchen Lv, Haojun Jiang, Wenhui Huang, Pengfei Qi, Shiji Song
(co-first author with my advisor)
Glance and Focus Networks for Dynamic Visual Recognition
IEEE Transactions on Pattern Analysis and Machine Intelligence (***TPAMI*, *Q1*, *IF=23.6***), 2023

[3] **Yulin Wang**, Gao Huang, Shiji Song, Xuran Pan, Yitong Xia, Cheng Wu
Regularizing Deep Networks with Semantic Data Augmentation
IEEE Transactions on Pattern Analysis and Machine Intelligence (***TPAMI*, *Q1*, *IF=23.6***), 2022

[4] Yizeng Han, Gao Huang, Shiji Song, Le Yang, Honghui Wang, **Yulin Wang**
Dynamic Neural Networks: A Survey
IEEE Transactions on Pattern Analysis and Machine Intelligence (***TPAMI*, *Q1*, *IF=23.6***), 2022

[5] **Yulin Wang**, Rui Huang, Gao Huang, Shiji Song, Cheng Wu
Collaborative Learning with Corrupted Labels
Neural Networks (***NN, Q1, IF=7.8***), 2020

[6] **Yulin Wang**, Yongping Zhang, Fei Tao, Tingyu Chen, Ying Cheng, Shunkun Yang
Logistics-aware Manufacturing Service Collaboration Optimisation towards Industrial Internet Platform
International Journal of Production Research (***IJPR, Q1, IF=9.2***), 2019

II. Selected Publications – Peer-reviewed Conference Papers

[7] **Yulin Wang**, Yang Yue, Rui Lu, Tianjiao Liu, Zhao Zhong, Shiji Song, Gao Huang
EfficientTrain: Exploring Generalized Curriculum Learning for Training Visual Backbones
IEEE/CVF International Conference on Computer Vision (***ICCV***), 2023

[8] Zanlin Ni*, **Yulin Wang***, Jiangwei Yu, Haojun Jiang, Yue Cao, Gao Huang
(*co-first author*)
Deep Incubation: Training Large Models by Divide-and-Conquering
IEEE/CVF International Conference on Computer Vision (***ICCV***), 2023

[9] **Yulin Wang**, Yang Yue, Xinhong Xu, Ali Hassani, Victor Kulikov, Nikita Orlov, Shiji Song, Humphrey Shi, Gao Huang
AdaFocus V3: On Unified Spatial-temporal Dynamic Video Recognition
European Conference on Computer Vision (***ECCV***), 2022

[10] **Yulin Wang**, Yang Yue, Yuanze Lin, Haojun Jiang, Zihang Lai, Victor Kulikov, Nikita Orlov, Humphrey Shi, Gao Huang
AdaFocus V2: End-to-End Training of Spatial Dynamic Networks for Video Recognition
IEEE/CVF Conference on Computer Vision and Pattern Recognition (***CVPR***), 2022

[11] **Yulin Wang**, Rui Huang, Shiji Song, Zeyi Huang, Gao Huang
Not All Images are Worth 16x16 Words: Dynamic Transformers for Efficient Image Recognition
Advances in Neural Information Processing Systems (***NeurIPS***), 2021

[12] **Yulin Wang**, Zhaoxi Chen, Haojun Jiang, Shiji Song, Yizeng Han, Gao Huang
Adaptive Focus for Efficient Video Recognition
IEEE/CVF International Conference on Computer Vision (***ICCV Oral***), 2021

[13] **Yulin Wang**, Zanlin Ni, Shiji Song, Le Yang, Gao Huang
Revisiting Locally Supervised Learning: An Alternative to End-to-end Training
International Conference on Learning Representations (***ICLR***), 2021

[14] Shuang Li, Mixue Xie, Kaixiong Gong, Chi Harold Liu, **Yulin Wang**, Wei Li
Transferable Semantic Augmentation for Domain Adaptation
IEEE/CVF Conference on Computer Vision and Pattern Recognition (***CVPR Oral***), 2021

[15] **Yulin Wang**, Kangchen Lv, Rui Huang, Shiji Song, Le Yang, Gao Huang
Glance and Focus: A Dynamic Approach to Reducing Spatial Redundancy in Image Classification
Advances in Neural Information Processing Systems (***NeurIPS***), 2020

[16] **Yulin Wang**, Xuran Pan, Shiji Song, Hong Zhang, Cheng Wu, Gao Huang
Implicit Semantic Data Augmentation for Deep Networks
Advances in Neural Information Processing Systems (***NeurIPS***), 2019

III. Full Publication List

[17] Ziwei Zheng, Le Yang, **Yulin Wang**, Miao Zhang, Lijun He, Gao Huang, Fan Li
Dynamic Spatial Focus for Efficient Compressed Video Action Recognition
IEEE Transactions on Circuits and Systems for Video Technology (***TCSVT, Q1, IF=8.4***), 2023

[18] **Yulin Wang**, Yizeng Han, Chaofei Wang, Shiji Song, Qi Tian, Gao Huang
Computation-efficient Deep Learning for Computer Vision: A Survey
Cybernetics and Intelligence (*sponsored by the Department of Automation, Tsinghua University* – 清华大学自动化系主办), 2023

[19] **Yulin Wang**, Jiayi Guo, Jiangshan Wang, Cheng Wu, Shiji Song, Gao Huang
Meta-Semi: A Meta-Learning Approach for Semi-Supervised Learning
CAAI Artificial Intelligence Research (*sponsored by CAAI* – 中国人工智能学会主办), 2022

[20] Yizeng Han, Dongchen Han, Zeyu Liu, **Yulin Wang**, Xuran Pan, Yifan Pu, Chao Deng, Junlan Feng, Shiji Song, Gao Huang
Dynamic Perceiver for Efficient Visual Recognition
IEEE/CVF International Conference on Computer Vision (***ICCV***), 2023

[21] Yifan Pu, Yiru Wang, Zhuofan Xia, Yizeng Han, **Yulin Wang**, Weihao Gan, Zidong Wang, Shiji Song, Gao Huang
Adaptive Rotated Convolution for Rotated Object Detection
IEEE/CVF International Conference on Computer Vision (***ICCV***), 2023

[22] Wenxuan Ma, Shuang Li, Jinming Zhang, Chi Harold Liu, Jingxuan Kang, **Yulin Wang**, Gao Huang
Borrowing Knowledge From Pre-trained Language Model: A New Data-efficient Visual Learning Paradigm
IEEE/CVF International Conference on Computer Vision (***ICCV***), 2023

[23] Wenxuan Ma, Jinming Zhang, Shuang Li, Chi Harold Liu, **Yulin Wang**, Wei Li
Making the Best of Both Worlds: A Domain-Oriented Transformer for Unsupervised Domain Adaptation
ACM International Conference on Multimedia (***ACM MM***), 2022

[24] Shuang Li, Kaixiong Gong, Chi Harold Liu, **Yulin Wang**, Feng Qiao, Xinjing Cheng
MetaSAug: Meta Semantic Augmentation for Long-Tailed Visual Recognition
IEEE/CVF Conference on Computer Vision and Pattern Recognition (***CVPR***), 2021

[25] Le Yang, Haojun Jiang, Ruojin Cai, **Yulin Wang**, Shiji Song, Gao Huang, Qi Tian
CondenseNet V2: Sparse Feature Reactivation for Deep Networks
IEEE/CVF Conference on Computer Vision and Pattern Recognition (***CVPR***), 2021

Industrial Applications

China Mobile Research Institute
Project – Efficient Inference of Deep Learning Models based on Dynamic Networks *2021 – Present*

- Relevant papers: [2, 4, 9-12, 15, 17, 20, 21].
- *Detecting harmful online images/videos* (*e.g., violent, pornographic, or other adult-only contents*):
  - **Improving real throughput by 3.4x** without sacrificing accuracy or increasing inference cost.
- *Smart city scenario – real-time surveillance systems* (*e.g., detecting the violent behaviors of pedestrians*):
  - **Reducing real latency by 3.0x** on practical edge computing hardware without sacrificing accuracy.
- ***Award for Frontier Exploration***, China Mobile Research Institute, 2023

Ministry of Science and Technology of China under Grant 2018AAA0101604
Sub-project – Data-efficient Machine Learning for Production Line Status Monitoring *2018 – 2023*

- Relevant papers: [1, 3, 14, 16, 22, 24].
- *Fault diagnosis for real production lines*:
  - Improving the generalization performance of deep networks significantly.

Selected Awards and Honors

- **National Scholarship** (国家奖学金), **Ministry of Education of China** *2023*
  (4th time, Top 2% in Tsinghua University)
- **ByteDance Scholarship** (字节跳动奖学金), **ByteDance Ltd.** *2022*
  (10 PhD students in China)
- **Microsoft Research Asia Fellowship Award** ("微软学者"奖学金), **Microsoft Research Asia** *2022*
  (12 PhD students in the Asia-Pacific region)
- "Li Yanda" Scholarship (李衍达励学基金), Tsinghua University *2022*
  (4 PhD students in the Department of Automation, Tsinghua University)
- **Baidu Scholarship** (百度奖学金), **Baidu Inc.** *2021*
  (10 PhD students worldwide)
- **CCF-CV Outstanding Young Researcher Award** (**CCF-CV** 学术新锐奖), **China Computer Federation** (**CCF**) *2021*
  (3 PhD/MS students in China)
- **National Scholarship** (国家奖学金), **Ministry of Education of China** *2021*
  (3rd time, Top 2% in Tsinghua University)
- Outstanding Oral Presentation, Doctoral Students Forum, Tsinghua University *2021*
- Travel Award, NeurIPS *2019*
- **"Shen Yuan" Medal** (沈元奖章), **Beihang University** *2018*
  (Top 10 of 18,000+ undergraduate students in Beihang University)
- National Scholarship (国家奖学金), Ministry of Education of China *2018*
  (2nd time, Top 2% in Beihang University)
- National Scholarship (国家奖学金), Ministry of Education of China *2017*
  (1st time, Top 2% in Beihang University)
- "Gong Xin" Innovation Scholarship (工信部创新奖学金), Ministry of Industry and Information Technology of China *2017*
  (Top 1/231 in Beihang University)
- First Prize, "Zhou Peiyuan" Mechanics Competition for Undergraduate Students (全国周培源大学生力学竞赛一等奖) *2017*
  (Top 0.3%)
- First Prize, National Undergraduate Mathematical Contest in Modeling (高教社杯全国大学生数学建模竞赛一等奖) *2017*
  (Top 0.2%)
- Scholarship for Outstanding Academic Performance, Beihang University *2016 – 2019*
  (Top 5% in Beihang University)

Academic Service

- Reviewer for TPAMI, IJCV, TCYB, TNNLS, TCSVT, Pattern Recognition, TMLR, ...
- Reviewer for ICML, NeurIPS, ICLR, CVPR, ICCV, ECCV, AAAI, ...
  - ***Outstanding Reviewer***, CVPR, 2021
- Co-sponsor of the Special Interest Group on Dynamic Neural Networks, Beijing Academy of Artificial Intelligence (BAAI).
  - https://littlepure2333.github.io/dynamic-neural-network
  - Core members include more than 20 researchers from 8 universities. We have organized more than 30 academic reports and tutorials. The cumulative audience has exceeded 1,000.

Invited Talks and Presentations

- 2023.02, School of Automation, Beijing Institute of Technology, Vision Transformers Meet Dynamic Inference
- 2021.12, PRCV 2021, Dynamic Deep Networks for Reducing Spatial Redundancy
- 2021.10, School of Computer Science, Fudan University, Dynamic Deep Networks for Reducing Spatial Redundancy
- 2021.09, Aibee (invited by Yuanqing Lin), Semantic Data Augmentation
- 2021.06, AI Time, Locally Supervised Deep Learning
- 2021.04, Beijing Academy of Artificial Intelligence, Dynamic Image/Video Recognition
- 2021.03, ByteDance Ltd., Semantic Data Augmentation
- 2020.11, Qingyuan Seminar, Glance and Focus Networks
- 2020.06, Huawei Technologies Ltd., Glance and Focus Networks
- 2019.10, School of Computer Science and Engineering, Beihang University, Semantic Data Augmentation